

## CLAIMS

What is claimed is:

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1. A method for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:
- causing the client to send a test message to a test URL including a host name not known to the client or network element but for which a test server is known to be authoritative; and
- at the test server, recognizing the host name of the test URL in a request from the network element to resolve the host name in the test URL to an IP address and registering the address of the network element making the request.
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2. The method according to Claim 1 wherein registering comprises logging the network element IP address.
3. The method according to Claim 1 wherein the test message includes a code in the host name of the test URL to identify the test message to the server.
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4. The method according to Claim 1 further comprising handing back a test IP address for the client and recording an IP address of the client when the client subsequently sends a message directly to the test IP address.
5. The method according to Claim 4 wherein the test message comprises a code in the host name of the test URL to identify the test message to the server.
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6. The method according to Claim 1 wherein the client is caused to send the test message by forwarding a redirect test message from a server to the client and the test message is to redirect the client to the test URL.
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7. The method according to Claim 6 wherein the redirected test message comprises the client IP address in the host name of the redirected test message.

8. The method according to Claim 7 further comprising causing the client to send a first message which results in the redirected test message with the client IP address from the first message.

9. The method according to Claim 7 further comprising encoding the client IP address in the host name of the test URL.

10. The method according to Claim 1 wherein the test URL is unique.

11. A system for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:

a client caused to send a message to a test URL including a host name not known to the client or network element; and -

a server that (i) is an authoritative server for the host name in the test URL, (ii) recognizes the host name of the test URL in a request from the network element to resolve the host name of the test URL to a test IP address, and (iii) identifies the address of the network element making the request.

12. The system according to Claim 11 wherein the server comprises a log for storing the network element IP address.

13. The method according to Claim 11 wherein the test message includes a code in the host name of the test URL to identify the test message to the server.

14. The system according to Claim 11 wherein the server hands back the test IP address for the client to record an IP address of the client when the client subsequently sends a message directly to the test IP address.

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15. The system according to Claim 14 wherein the test message comprises a code in the host name of the test URL to identify the test message to the server.

16. The system according to Claim 11 wherein the client is caused to send the test message by forwarding a redirect test message from a server to the client and the test message is to redirect the client to the test URL.

17. The system according to Claim 16 wherein the redirected test message comprises the client IP address in the host name of the redirected test message.

18. The system according to Claim 17 wherein the client sends a first message which results in the redirected test message with the client IP address from the first message.

19. The system according to Claim 17 further comprising encoding the client IP address in the host name of the test URL.

20. The system according to Claim 11 wherein the test URL is unique.

21. An apparatus for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:

an interface coupled to a network to receive client messages; and  
a processor coupled to the interface, the processor executing a set of computer program instructions, the computer program instructions:

receiving a test message from a client to a test URL including a host name not known to the client or network element but for which the apparatus is known to be authoritative; and

recognizing the test URL in a request from the network element to resolve the host name to an IP address and registering the network element making the request.

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22. The apparatus according to Claim 21 further comprising memory coupled to the processor for the processor to log the network element IP address.
23. The apparatus according to Claim 21 wherein the test message includes a code in the host name of the test URL to identify the test message to the server.
- 5 24. The apparatus according to Claim 21 wherein the executable instructions further include instructions to hand back a test IP address for the client and record an IP address of the client when the client subsequently sends a message directly to the test IP address.
- 10 25. The apparatus according to Claim 24 wherein the test message comprises a code in the host name of the test URL to identify the test message to the server.
26. The apparatus according to Claim 21 wherein the instructions further comprise instructions to cause the client to send the test message by causing a server to forward a redirect message from the server to the client and the test message is to redirect the client to the test URL.
- 15 27. The apparatus according to Claim 26 wherein the redirected test message comprises the client IP address in the host name of the redirected test message.
28. The apparatus according to Claim 27 wherein the instructions further comprise instructions to cause the client to send a first message which results in the redirected test message with the client IP address from the first message.
- 20 29. The apparatus according to Claim 27 further comprising instructions to decode the client IP address from the host name of the test URL.
30. The apparatus according to Claim 21 wherein the test URL is unique.

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31. In a server, a method for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:

receiving a message from a client to a test URL including a host name not known to the client or network element but for which the server is known to be authoritative; and

recognizing the host name in the test URL in a request from the network element to resolve the host name to an IP address and registering the address of the network element making the request.

32. The method according to Claim 31 further comprising logging the network element IP address.

33. The method according to Claim 31 wherein the test message includes a code in a host name of the test URL to identify the test message to the server.

34. The method according to Claim 31 further including handing back a test IP address for the client and recording an IP address of the client when the client subsequently sends a message directly to the test IP address.

35. The method according to Claim 34 wherein the test message comprises a code in the host name of the test URL to identify the test message to the server.

36. The method according to Claim 31 further comprising causing the client to send the test message by causing a server to forward a redirect message from the server to the client and the test message is to redirect the client to the test URL.

37. The method according to Claim 36 wherein the redirected test message comprises the client IP address in the host name of the redirected test message.

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38. The method according to Claim 37 further comprising causing the client to send a first message which results in the redirected test message with the client IP address from the first message.
39. The method according to Claim 37 further comprising decoding the client IP address from the host name of the test URL.
40. The method according to Claim 31 wherein the test URL is unique.
41. A computer program product comprising:  
a computer usable medium for storing data; and  
a set of computer program instructions embodied on the computer useable medium, including instructions to:  
receive a message from a client to a test URL including a host name not known to the client or network element but for which a server executing the computer program instructions is known to be authoritative; and  
recognize the host name in the test URL in a request from the network element to resolve the host name to an IP address and register the address of the network element making the request.
42. The computer program product according to Claim 41 further comprising instructions to log the network element IP address.
43. The computer program product according to Claim 41 wherein the test message comprises a code in the host name of the URL to identify the test message to the server.
44. The computer program product according to Claim 41 further comprising instructions to hand back a test IP address for the client and recording an IP

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address of the client when the client subsequently sends a message directly to the test IP address.

45. The computer program product according to Claim 45 wherein the test message comprises a code in the host name of the test URL to identify the test message to the server.

46. The computer program product according to Claim 41 wherein the instructions further comprise instructions to cause the client to send the test message by causing a server to forward a redirect message from the server to the client and the test message is to redirect the client to the test URL.

- 10 47. The computer program product according to Claim 46 wherein the redirected test message comprises the client IP address in the host name of the redirected test message.

48. The computer program product according to Claim 47 wherein the instructions further comprise instructions to cause the client to send a first message which results in the redirected test message with the client IP address from the first message.

49. The computer program product according to Claim 47 further comprising instructions to decode the client IP address from the host name of the test URL.

50. The computer program product according to Claim 41 wherein the test URL is unique.

51. A method for assisting to identify an address of a network element used by a particular client to obtain IP addresses, comprising:

receiving a message from a client;

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parsing the message for an IP address of the client and encoding the client IP address into a host name for a test URL including the host name not known to the client or network element used by the client but for which a test server is authoritative; and

5 forwarding the test URL back for the client in a redirect message which causes the network element to make a request of the server to resolve the host name in the test URL to a test IP address.

52. An apparatus for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:

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means for receiving a message from a client;

means for parsing the message for an IP address of the client and encoding the client IP address into a host name for a test URL including the host name not known to the client or network element used by the client but for which a test server is authoritative; and

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means for forwarding the test URL back for the client in a redirect message which causes the network element to make a request of the server to resolve the host name in the test URL to a test IP address.

53. A signal for identifying an address of a network element used by a particular client to obtain IP addresses, comprising:

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a test URL comprising a unique host name to identify a test.

54. The signal according to Claim 53 wherein the host name of the test URL comprises an encoded IP address of the client.

55. The signal according to Claim 53 wherein the test URL is unique.

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